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CUP-FUNGI* OF COMMON OCCURRENCE

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As spring opens the nature lover is glad to welcome the return of the flowers which occur with such surprising regularity in the same region year after year. He will not hesitate to predict what species will be found at any given time and place barring unusual climatic conditions.

Few realize that many of the fungi occur with the same regularity and that, indeed, what we call the fungus merely corresponds to the flowering and fruiting stage of the higher plants, and that their growing stage persists, unseen, in the soil or other substratum throughout the year and often for many years or until the substratum itself becomes so changed chemically that it can no longer support this kind of life. So if sufficiently observant one can also predict the fungus flora of any given region for any particular period with about as much certainty as that of the flowering plants, provided the rainfall is normal.

Taking as an illustration the cup-fungi, including the most conspicuous and attractive forms of the higher fungi belonging to the group known as the ascomycetes, we find the group made up of early spring, summer, and autumn species while others like many of the flowering plants continue to fruit throughout the warm or growing season. The fruiting time of some species is limited to a single month in a given region which in warmer or colder parts may be shifted a month forward or backward as the case may be.

For the benefit of local workers who are interested in out-of-door excursions, we will enumerate a few of the cup-fungi which

* An illustrated volume on the Cup-Fungi of North America is in course of preparation by the writer and to this end, specimens, photographs or data bearing on the occurrence and distribution of any of the species will be gladly received, as well as the names of any who might be interested in securing such a volume when completed.

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may be expected during the different periods of the year. These usually occur in shaded places in woods, in the borders of woods, or more rarely in open places.

EARLY SPRING SPECIES

The scarlet cup (*Sarcoscypha coccinea*) is one of the first to appear in the spring as soon as the frost is out of the ground. The cups grow from sticks in the woods and are externally whitish with the interior scarlet-red and reach a diameter of one or two inches. Like some of the early spring flowers if the season is sufficiently open the scarlet cup may rarely be found in the late autumn apparently in anticipation of the springtime.

The black urn (*Urnula Craterium*) like the preceding occurs early in the spring from March to May or rarely extending over to June. It first appears in the form of a row of black fingers growing from partially buried sticks. Later these club-shaped bodies open and expand into the form of an urn suggesting the above name. The fruiting bodies when mature are two or three inches across and supported by a stout stem.

The tuberous cup-fungi (*Sclerotinia tuberosa* and *Sclerotinia Geranii*) have been collected together in the same restricted region for a number of years, their fruiting season being limited to April and May. The appearance of the two named species can be predicted in that place next spring with as much certainty as the appearance of any of the flowering plants which persist in the ground from year to year.

The spring mushroom (*Morchella esculenta*) or "honeycomb" mushroom as it is sometimes called makes its appearance in this section almost exclusively in the month of May, although it may come in April a little further south. All of the specimens seen from New York State were collected in May. This species may also be found year after year in the same place and is one of the most important edible species of cup-fungi.

LATE SPRING OR SUMMER SPECIES

Closely related to the large scarlet cup which appears so early in the spring are the hairy cup and the smaller western form of the scarlet cup (*Sarcoscypha floccosa* and *Sarcoscypha occidentalis*). In sharp contrast to the scarlet cup these forms occur from May

to July or August and like their larger relative attract much attention because of their brilliant color.

Occurring about the same time are the species of *Acetabula* so called because of their resemblance to the ancient vinegar-cup whatever that may have been. The two forms shown in the accompanying plate (*Acetabula sulcata* and *Acetabula vulgaris*) are frequently collected but can scarcely be said to be common. The former is characterized by its fluted stem and the latter by the veins which adorn the exterior of the cups.

The saddle fungi occur in the late spring and extend through until autumn. In these types the fruiting body consists of a stem with a cap which is inclined to assume the form of a saddle suggesting the name. The white saddle-fungus (*Helvella crispa*), shown on plate, is often encountered.

The brain fungus (*Gyromitra esculenta*) also shown on the accompanying plate is closely related to the former and is often treated in the same genus. The cap in this form is convoluted into brain-like folds. As the name implies the species is edible, as are most of the cup-fungi.

The orange cup (*Aleuria aurantia*) although often seen in the spring is far more abundant in September and October. This species may be easily recognized by the decidedly orange colored cups reaching a diameter of one to two inches.

The revolute cup (*Peziza repanda*), shown on the plate, may be found during the summer and autumn on rotten logs and stumps. The cups become very large often several inches in diameter and flatten out, often with the margin turned back.

AUTUMN SPECIES

While many species extend through to the autumn a number are distinctly fall species. Among these is the shield-shaped species (*Peziza clypeata*) which may be found on rotten logs from September until November or until freezing weather interferes with its growth. This species has been collected by the writer on the same log for a number of years in succession, always occurring at about the same time in the autumn.



A cluster of cup-fungi (*Sclerotinia*) puffing their spores.

SPORE DISPERSAL

One of the most interesting phenomena in connection with this group of fungi is that of the puffing of their spores. The spores in this type of fungus are borne in sacs, for the most part cylindrical, and usually eight in each sac or ascus. These are held under tension. At the slightest atmospheric disturbance, thousands or perhaps millions of these sacs discharge their contents into the air where the minute spores appear like a cloud of dust and are borne away by the slightest breeze. Through the courtesy of Cornell University, I am permitted to reproduce the rather remarkable photograph made by Mr. Fisher, photographer for the Department of Plant Pathology of that institution. Anyone collecting cup-fungi will be able to observe the smoking or puffing of their spores.

EXPLANATION OF PLATE

1. Spring or honeycomb mushroom, *Morchella esculenta*.
2. Fluted Acetabula, *Acetabula sulcata*.
3. White saddle-fungus, *Helvella crispa*.
4. Common Acetabula, *Acetabula vulgaris*.
5. Brain-fungus, *Gyromitra esculenta*.
6. Revolute cup, *Peziza repanda*

